

**Page 39, lines 18-38: replace by the following:**

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For p85 $\alpha$  125 ng of poly (A)<sup>+</sup> RNA was reverse transcribed with 2.5 units rTth DNA polymerase (Perkin-Elmer-Cetus) at 70°C for 10 min in a 10  $\mu$ l reaction containing 10 mM Tris-HCl (pH 8.3), 90 mM KCl, 1mM MnCl, 0.5 mM dNPT mixture and 1.2  $\mu$ M antisense primer (5'-CAGGCCTGGCTTCCTGT) (SEQ ID NO: 19). For DNA polymerization the reaction volume was adjusted to 50  $\mu$ l by adding a single mix giving the following final concentrations: 5% (v/v) glycerol, 10 mM Tris-HCl (pH 8.3), 100 mM KCl, 0.75 mM EGTA, 0.05% (v/v) Tween 20, 2 mM MgCl<sub>2</sub>, 0.24  $\mu$ M sense primer (5'-AACCAGGCTCAACTGTT)

(SEQ ID NO: 20). PCR was then performed under the following reaction conditions: 92°C 1 min, 58°C 1 min, 72°C 1 min for 25 cycles on a Perkin Elmer-Cetus DNA thermal cycler.

Conditions for p110 were similar except concentration of the antisense primer (5'-TGCTGTAAATTCTAAATGCTG) (SEQ ID NO: 21) was increased to 4.8 µM during the reverse transcription step. DNA polymerisation conditions were the same except the final MgCl<sub>2</sub> concentration was increased to 2.5 mM and both primers (sense primer = 5'-GTATTTTCATGAAACAAATGA) (SEQ ID NO: 22) were present at a final concentration of 0.96 µM. Taq DNA polymerase (Promega) was also added at 0.03 U µl<sup>-1</sup>. PCR was performed as follows: 92°C 30 sec, 54°C 5 sec, 72°C 30 sec for 35 cycles. 20 µl of each reaction was run on a 3% agarose gel (Maniatis, et al. 1982) and visualised by staining with ethidium bromide.

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Page 42, lines 1-10: replace by the following:

peptide CKMDWIFHTIKQHALN (SEQ ID NO: 23) was synthesized by Fmoc chemistry and purified by HPLC. It was then coupled to KLH using glutaraldehyde, and injected into the lymph nodes of rabbits using methods described in Kypta, R M et al., (1990), Cell 62, 481-492. Positive antisera as determined by enzyme-linked immunoassay were affinity purified on specific peptide-Actigel affinity columns. Anti-p85α (Otsu, et al., 1991) and anti CSF-1 receptor (Ashmun, et al., 1989) antisera are previously documented. Immunoprecipitations were carried out as described in Otsu, et al., 1991.

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Page 52, lines 26-38 replace by the following:

The human cDNA was isolated from a cDNA library, made from mRNA isolated from the human cell line KG1a using standard techniques. The probe was a partial cDNA from the second half of the bovine p110 cDNA. The probe was labelled with <sup>32</sup>P and hybridised overnight to the library filters at 65°C in 1M NaPi, 7% SDS buffer. The filters were washed in 2xSSC at 50°C, and exposed to X-ray film at -70°C. The nucleotide sequence is shown in Figure 16 together with the corresponding amino acid sequence. The human p110 sequence has 95% homology to the bovine p119 sequence at the DNA level and is 98% identical at the protein level (Figures 17 and 18). The protein sequence is shown in Figure 19. Primers (357) AAG GAT CAG AAC AAT GCC T (SEQ ID NO: 24) and (416) AGG CTT TCT TTA GCC ATC A (SEQ ID NO: 25) were

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Page 53, lines 5-23: replace by the following:

Two novel cDNAs related to p110 have been cloned. Degenerate primers were designed to conserved sequences between human p110 and the related yeast gene VPS34 (Sense (GDDLQRD) (SEQ ID NO: 26) 5' GGN GAT/C GAT/C T/C TA/G CGN CAA/G GA-3 (SEQ ID NO: 27) antisense (FHIDFGHF) (SEQ ID NO: 28) 5' A/GAA A/GTG ICC A/GAA A/GTC A/G/TAT A/GTG A/GAA-3) (SEQ ID NO: 29). These were used in RT-PCR reactions using mRNA from the